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EDITORIAL

The digitization of the *Pharmaceutical Historian* archive

This number of *Pharmaceutical Historian* marks another important milestone in the history of this journal. The first number of volume 1 appeared in October 1967, and it has appeared regularly ever since, and quarterly from volume 13 in 1983. A first index of its contents was published in 1996, covering the first 29 years, up to volume 26. Thereafter an index has been published at 5 yearly intervals, which in recent years has been available on the BSHP website. But until now access to the journal itself has depended on the availability of a hard copy, which for many researchers has meant a trip to a distant library.

Pharmaceutical Historian 1967 to 2016

We are therefore pleased to announce that the digitization of the complete *Pharmaceutical Historian* archive, from 1967 to the end of 2016, has now been completed. The entire archive is available online on an open access basis. The work has been very generously carried out at the Technische Universität Braunschweig (Technical University of Braunschweig) in Germany by Stefan Wulle and his team. The archive itself is being kindly hosted on the University of Braunschweig Library server.

The archive can be accessed directly at the Technische Universität Braunschweig at the following link: https://publikationsserver.tu-braunschweig.de/receive/dbbs_mods_65362 Alternatively it can be accessed indirectly through the websites of either the International Society for the History of Pharmacy (ISHP) and the British Society for the History of Pharmacy (BSHP). For ISHP go to https://histpharm.org/pharmaceutical-historian/ and then click 'archive'. For the BSHP website go to the publications page at https://www.bshp.org/publications/default.asp and then click 'archive'.

Indexes to Pharmaceutical Historian

Multi-year indexes for Pharmaceutical Historian are available on the BSHP website. The five currently available cover the years 1967 to 1995, 1996 to 2000, 2001 to 2005, 2006 to 2010 and 2011 to 2015 respectively. They can be accessed at https://www.bshp.org/publications/Indexes.asp

Indexes will continue to be produced on a five-yearly basis. The next one will be for the period 2016-2020. It will only be available online at the BSHP website.

Note that with the completion of digitization of both the *Pharmaceutical Historian* archive and the indexes, hard copies of both will no longer be available for purchase.

From volume 47 number 1, published in March 2017, the *Pharmaceutical Historian* has been available online on an open access basis on the Ingenta Connect platform. The link to this is http://www.ingentaconnect.com/content/bshp/ph No link to the archive or to the indexes of past volumes will appear on the Ingenta platform.

Transactions of the British Society for the History of Pharmacy

As some readers will be aware, in the early years publication of the *Pharmaceutical Historian* was accompanied by the occasional appearance of a more scholarly publication containing original research articles. Volume 1 Number 1 of this, under the title *Transactions of the British Society for the History of Pharmacy,* appeared in 1970. Number 2 appeared in 1971, Number 3 followed 3 years later in 1974, and Number 4 (the last one) in 1977.

We are pleased to report that all four numbers of *Transactions of the British Society for the History of Pharmacy* have also been digitised, and are again hosted on the University of Brauschweig server. For the *Transactions* the link is https://publikationsserver.tu-braunschweig.de/receive/dbbs_mods_65592

Note however that no reference to the *Transactions* will be made on either the ISHP website or on the Ingenta Connect platform as they are a sole publication of the British society. However more details about the Transactions and a link to access them online can be found on the BSHP website at https://www.bshp.org/publications/transactions.asp

Newsletters of BSHP and ISHP

Readers may also like to be aware that the entire archive of the *Newsletter* of the International Society for the History of Pharmacy, first published in 2000, are also available on the ISHP website at https://histpharm.org/newsletter-archive/ The Newsletter of British Society for the History of Pharmacy, the *BSHP Gazette,* first published in May 2017, is available at https://www.bshp.org/publications/gazette.asp

Stuart Anderson

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ARTICLE

The emergence of a new concept of effectiveness: Documentation systems and psycho-pharmaceuticals in East and West Germany, 1955-1985

Viola Balz

Abstract

The generation of a new concept for assessing the effectiveness of psycho-pharmaceuticals in Germany became possible as a result of developing new clinical recording systems. Drawing on separate debates taking place in East and West Germany prior to reunification, this article illustrates how the local development of such systems entailed extensive semantic changes in the concept of effectiveness in the treatment of psychiatric illness and also generated new concepts of mental health. Similarities and differences in the assessment of effectiveness are described. Both systems generated new concepts of effectiveness by splitting up, shifting and rearranging old classification parameters, resulting in a number of newly described mental states and mental health diseases.

Zusammenfassung

Das Auftauchen eines neuen Konzeptes zur Wirksamkeitsbeurteilung von Psychopharmaka in Deutschland wurde erst durch die Entwicklung neuer klinischer Aufschreibsysteme möglich. Aufbauend auf die unterschiedlichen Debatten in Ost- und Westdeutschland vor der Wiedervereinigung zeigt der Artikel, wie die lokale Entwicklung zweier unterschiedlicher Aufschreibsysteme Veränderungen in den Wirksamkeitskonzepten bewirkten und darüber hinaus neue Vorstellungen von psychischer Gesundheit hervorbrachten. Dabei werden Gemeinsamkeiten und Unterschiede in der Wirksamkeitsbeurteilung beider deutscher Staaten herausgearbeitet. Beide Systeme generierten neue Vorstellungen von Wirksamkeit indem sie die alten nosologischen Parameter aufspalteten, veränderten und neu anordneten und damit neue psychische Krankheiten sichtbar machten.

Introduction

In 1958 Professor Hans-Hermann Meyer at the Psychiatrische Universitätsklinik in Heidelberg, one of the leading scientists in the field of clinical psycho-pharmacology in West Germany at that time, summarised the results of his research in this field to date as follows:

> The methods of modern medical statistics fail us here. Even studies with matching comparative trial series and large numbers show inevitable errors. The cause of this is difficulties in diagnostics, the lack of characteristic patho-physiological changes, alternating processes, spontaneous remissions, and many other factors. Comparison to the success stories of other clinics, especially from abroad, is all but impossible in our field, above all regarding endogenous psychoses, due to diverse diagnostics.[1]

Meyer emphasizes here issues that were to accompany the assessment of the effectiveness of modern drugs introduced into psychiatry after 1953. Locally diverse diagnostic practices in schools of psychiatry, and established clinical-descriptive customs in medical documentation, made it difficult to capture in a generalisable way the effects of psycho-pharmaceuticals.

The fact that the particular effectiveness of psycho-pharmaceuticals only became visible with clinical trials in patients posed a challenge to their evaluation. The psychotropic effects to be observed, however, are conveyed through the subjectiveness of the patients, and only become accessible for clinicians in the comments of their patients. Drawing on the work of Bruno Latour, Philippe Pignarre has argued that in psychiatry the patient is the only reliable witness to the clinical trial.[2] The effects of psycho-pharmaceuticals are thus initially as diverse as the patients themselves.

Drawing on this insight, I put forward in this article the assertion that stabilisation and standardisation of psycho-pharmaceutical effects only became possible with the reassessment of the actual subjective elements of the patient's experience. In my analysis I use the term 'witness' in two senses: on the one hand, I use it to exemplify an early form of effectiveness assessment, mainly based on the observations of individual physicians as witnesses; and on the other hand, I use it to emphasize the part played by the patient as the only reliable witness within the scope of this knowledge generation.

I demonstrate here that generating a robust concept of effectiveness for psycho-pharmaceuticals was only possible due to the development of robust new clinical recording systems. The development of new recording systems took place within the scope of adjusting the conditions of a 'clinical experiment', as I refer to the introduction of a controlled clinical trial. Within the context of this transformation these new recording systems can be regarded as part of experimental systems as described by Hans Jörg Rheinberger.[3] However, without conducting a detailed analysis of this process here, I will outline the emergence of a new recording system that allows a new concept of effectiveness to be developed. The aim of this investigation is to encourage the local development of such systems, which entail extensive semantic changes in the concept of effectiveness.

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Using the example of debates in East and West Germany, I describe the similarities and differences in effectiveness assessment in the two states. This approach has been chosen because local analyses of German standardisation efforts during the period investigated (from 1955 to 1985) hardly ever took account of the fact that there existed two different German states. Even though the two states shared many traditions – determined especially during the early stages of introducing the new psycho-pharmaceuticals – in the end two different documentation systems were developed. In doing so, the debate shifted from local discussions among different schools of psychiatry within the states, to the national level of "Systemkonkurrenz", that is, East-West competition.

This competition was of particular relevance for developments in East Germany, since West German researchers hardly ever referred to the German Democratic Republic (GDR). But were the two systems sufficiently different to provide a diverse range of evidence? And what differences actually featured in the two systems? Though not intended to provide a systematic comparison, this article illustrates – based on new and additional information – differences in the definitions of both effectiveness and mental health diseases that result from taking account of local conditions.

This article has four main parts. It begins by describing the debates in the young West German republic, which led to the development of the AMP-System, constructed by the Working Group on Methodology and Documentation in Psychiatry ("Arbeitsgemeinschaft für Methodik und Dokumentation in der Psychiatrie").[4] This is followed by an explanation as to how the standardisation of psycho-pharmaceutical effects was discussed in East Germany and which competing positions were confronted and resolved. The third part outlines the introduction of the AMP system and its subsequent development in East Germany. The final part examines how the new assessment logic of the AMP system and its East German extension, the Structured Psychopathological Assessment System ("Strukturiertes Psychopathologisches Erfassungssystem", SPES), led to changes in knowledge and understanding about psychotropic effects. It is first necessary, however, to examine conditions in West Germany in the 1950s and 1960s.

Early attempts at the evaluation of effectiveness in West Germany, 1950s and 1960s

West German attempts in the 1950s and early 1960s to assess the effectiveness of psycho-pharmaceuticals encountered a number of problems: at first, psychiatric diagnosis was highly variable and fragmented into many locally different schools of thought. Thus the psychiatrist Klaus Conrad considered it bewildering that, in West Germany alone, the diagnosis of a specific mental health case was allocated to a different category depending on where it was observed.[5] During the early days of the Federal Republic of Germany (FRG, the name used by the communist GDR for West Germany) a diagnosis was frequently based on Jaspersian phenomenology (an approach which is more concerned with the non-mental features of a patient's illness). Such an approach did not lend itself to the measurement and quantification of the effectiveness of individual treatments.

Hence, during the 1950s only vaguely definable issues were considered in relation to how the new drugs were supposed to improve mental state and how this could be measured. A particular German idiosyncrasy was that drug effects were assessed entirely by individual physicians.[6] In contrast, effectiveness assessment in the USA made use of state-based systems from an early date; test arrangement standards and statistical evaluation in psycho-pharmacology were already well established there in the mid-1950s.[7]

Developments in the United States were carried back into the West German debate via German psychiatrists such as Fritz Freyhan, who had emigrated to the US during the Nazi era and stayed there. At the end of the 1950s in the journal *Der Nervenarzt* Freyhan suggested that the use of psycho-pharmaceuticals should be orientated around target symptoms. As Freyhan put it:

> It is therefore also useless to want to connect the therapeutic indications with clinical diagnoses […]. For clinical evaluations it thus requires a double book-keeping system, that apart from the diagnoses also describes the "target symptoms," the modification of which is the purpose of the therapy. Only on the basis of collected data can psycho-pharmaceutical modes of effectiveness be differentiated between and can the results of examinations be compared in the literature.[8]

Freyhan's request, however, was a far cry from West German reality, where the effectiveness of new drugs was largely collected and evaluated by reference to clinical diagnoses in individual case histories. Closely following this pattern, the published success stories of psycho-pharmaceuticals at that time were often made plausible by the use of casuistics, i.e. the reasoning used to resolve moral problems by extracting or extending theoretical rules from particular instances, and applying them to new instances. In doing so, those case histories were closely linked to the documentation found

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in the patient files, and usually partially copied verbatim from them.[9]

Publications arguing with published statistics were almost non-existent in West Germany during the 1950s. Likewise, placebo-controlled double-blind trials were virtually unheard of before the late 1960s. Clinicians rejected them, arguing that they themselves were perfectly capable of evaluating positive drug effects with corresponding tests.[10] But eventually evaluation attempts described in the literature were discussed in psychiatric clinics. However, in the 1950s evaluations were primarily based on the impression of the examiner, and were closely attached to the testimonial of the physician; they were thus subject to individual fluctuations and bias.

But in the late 1950s five young German clinicians criticised the fact that data collected in this way varied too much from clinic to clinic, and was barely comparable at either the national or international level. They founded a Society for Neuropsychopharmacology ("Arbeits-gemeinschaft für Neuropsychopharmakologie", AGNP) and dedicated their work to the standardisation of effectiveness of mental health treatments. In later years the membership of AGNP would include psychiatrists, pharmacologists and pharmaceutical industry staff. It also provided the national selection committee for the International College for Psychopharmacology ("Collegium Inter-nationale Psychopharmacologicum", CINP).

The 'Club of Five' and the AMP System in West Germany in the 1960s

During the early 1960s a so-called 'Club of Five', consisting of the psychiatrists Hanns Hippius (born 1925), Max P. Engelmeier (1921-1993), Walter Schmitt (born 1920), Kurt Heinrich (1925-2015), and Dieter Bente (1921-1983), decided to develop a robust and comprehensive recording system. Such a system would harmonise the highly varied use of psycho-pharmaceuticals across the nation, contribute to methodical standardisation of clinical testing procedures, and generate a valid and reliable concept of effectiveness.

However, psychiatry schools in West Germany at that time gave priority to individual factors, placing emphasis on understanding the patient's psychological makeup, as well as on the face-to-face encounter between the patient and the patient's physician.[11] Even the psychiatrists from the Club of Five assigned themselves to different schools of thought in psychiatry, ranging from Dasein analysis (an approach based on the existential philosophy of Martin Heidegger) to biochemistry. But how could all these divergent observations based upon completely different premises be standardised? In the end, the Club of Five concluded that this was only possible by a total restructuring of practice. According to these researchers the evaluation of effectiveness necessitated the collection of a vast amount of information:

> Primarily the imperative [is] to collect possibly numerous individual data from clinical trials; because only by embarking upon this methodical path would consistencies and divergences, the essential and the irrelevant, as well as indications and contra-indications, later reveal themselves.[12]

To meet this goal it would be necessary to change the existing large number of very small, structured clinical trials into the controlled conditions of a large experiment. This transformation marked the starting point for a reorganisation of knowledge. In the clinic too practice increasingly changed to statistical experimental conditions. As a first step this required the translation of descriptive clinical reports of the psycho-pharmaceutical effects of various treatments into statistical parameters using standardised forms of collection.[13]

For the standardised assessment of psycho-pharmaceuticals the five psychiatrists developed medical documentation in the form of a diagnostic card, which was attached to each patient's file and formed part of the clinical survey. The documentation was meant to be atheoretical, so as to allow psychiatrists trained in any school of thought to accept it. The diagnostic card sampled 114 somatic and 110 psycho-pathological features in a formalized way, thus providing a quantifiable starting base for statistical evaluation (Figure 1).

The five psychiatrists explained that at the core of their venture was the complete symptomatic decoding of a mental health statement. This was supposed to replace the previously existing alignment to complex biographical case histories in medical documentation. However, the psychiatrists did not explain how they generated the individual symptoms; they themselves conceded that the collected symptoms were disproportionately harder to scale reliably than were exactly measurable quantities in a natural scientific experiment.[14] The new form of collection was supposed to allow the subjectiveness of the physician and patient to be removed from consideration, and to create a reliable concept of effectiveness.

In the late 1960s the diagnostic card finally gained acceptance in West Germany as binding medical documentation, despite severe criticism by some clinicians on this symptom-orientated form of collection. During its initial establishment period, at least, the card met with several forms of resistance. Some psychiatrists, for

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Figure 1. *AMP-System (Source: Schmitt, W. Psychiatrische Pharmakotherapie. Experiment und klinische Grundlagen eines Klassifizierungsversuches. Heidelberg: Dr. Alfred Hüthig, 1965. Theoretische und klinische Medizin in Einzeldarstellungen. Bd.21, S.57)*

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instance, did not consider the introduction of new measurement methods to be an adequate way to generate knowledge within psychiatry.[15] Also criticised was the disappearance of the physician-patient relationship from the effectiveness evaluation. Explaining the effects of the drug merely from the effect of a substance would, it was argued, nurture a position in which the patient would become more and more irrelevant.[16]

However, such reservations were closely linked to criticisms against the earlier diagnostic system of Emil Kraepelin. The new AMP system reminded some researchers of Kraepelin's system, although it was becoming increasingly marginal. After 1965 the diagnostic card was developed further in collaboration with Swiss scientists, and it was relaunched in 1969 under its initials as the 'AMP system'.[17] In the early 1970s the system was published for the first time as a manual for the documentation of psychiatric evidence.[18]

To this day the system remains in use in several revised forms as an important means of documenting psychiatric evidence in Germany.[19] However, with this new form of knowledge collection the documented concept of effectiveness itself also changed. Before these changes are analysed in more detail, I will provide a reconstruction of methods of effectiveness standardisation in East Germany at this time in order to provide a broader perspective.

Effectiveness standardisation in East Germany until the 1960s

In May 1962 Karl Leonhard, an internationally renowned psychopathologist and professor at the Charité University Hospital in Berlin – then the capital of the German Democratic Republic – received a letter from the USA. In this letter an American psychiatrist inquired how Leonhard planned to combine his differentiated psychopathology with the newer somatic treatment methods, especially psychotropic drugs. Leonhard replied as follows:

> 1. [...] I draw a sharp distinction between psychoses that clear up under all circumstances even without treatment and those that are subject to some damage or defect […]. With cycloid patients a somatic treatment accelerates the success; with the unsystematic schizophrenias it can in my opinion often prevent damage. […]
>
> 2. With the systematic forms, in my opinion, all treatment forms are futile. At best they will alleviate the condition short-term, but the process continues independent of treatment. […] I have not observed with any certainty that any one of the various [somatic treatment] options would be significantly more successful than the other.[20]

This quotation makes clear that Leonhard attached the highest priority to the exact diagnosis of somatic and psychiatric conditions and description of psycho-pharmacological therapies. He devised his own classification system, and in later years he and his students made great efforts to standardise the effectiveness of new psycho-pharmaceuticals using this eponymous Leonhardian classification system. In the 1950s and 1960s this was one of the most influential standardisations of effectiveness in East German psychiatry.

Central to Leonhard's psycho-pathology was the very fine, precise classification of psychoses according to illness progression and prognosis. Long-term observation, often over the course of decades, played a central role in the knowledge regime of the Berlin clinic. Leonhard had developed his system for diagnostic description in the tradition of Karl Kleist. This system differentiated disease entities into numerous, separate sub-groups**.** Leonhard's method of diagnosis was marked by a rigid demarcation between different disease entities, to which he ascribed the highest priority. This kind of psychiatric classification formed something that, in the history of psychiatry, has been described as the School of Splitters.

Leonhard's approach to the standardisation of the new psycho-pharmaceuticals was widely adopted throughout East Germany, largely due to the efforts of his students. Above all, Heinz A. F. Schulze, the leading senior physician at the clinic, distinguished himself in the field of psycho-pharmaceutical research. The particular research focus of the clinic – the precise differentiation of psychoses – is also reflected in Schulze's publications on psycho-pharmaceuticals. In the 1960s Schulze and his colleagues published several articles on the standardisation of effectiveness using Leonhard's diagnostic system.[21]

Two aspects were decisive for those publications. Firstly, Schulze and his colleague Neumann wanted to know more about the drug – that is, its specific indication in accordance with Leonhard's psycho-pathology. Secondly, they employed the drug as a tool in the differentiation of psycho-pathological states. They used the effects of the psycho-pharmaceuticals in order to better separate given disease states from each other. In order to make their effects plausible they made use of casuistics with their arguments, just as their West German colleagues had done in the 1950s.

Their focus was the individual. They took the underlying case histories, often verbatim from the individual patient's files. They argued that individual cases

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could be considered as typical examples, and hence generalisations could be made about underlying disease states. In doing so they drew upon that same evidence for the systematic classification of psychiatric diseases which in West Germany had already been rejected in the early 1960s.

Even in East Germany Leonhard's model was not without controversy. But his fiercest adversary during the 1960s, Hellmut Rennert, who held a chair in Halle, southern Germany, also tried to standardise the effectiveness of the new psycho-pharmaceuticals by means of his pathology. Rennert used the new drugs to establish his own doctrine of the universal genesis of psychoses.

Rennert's basic idea contradicted Leonhard's particular classification scheme. He criticized other approaches such as Leonhard's for putting too much emphasis on individual pathogenetic aspects. Renner's ideas, however, were based on the idea of "Einheitspsychosen" – the belief that the various forms of psychoses that appeared could be understood as nothing more than different stages in the same process of illness development. Rennert's students, and Gert-Eberhardt Kühne in particular, tried to support this theory by psycho-pharmaceutical therapy. They demonstrated that psycho-pharmaceuticals did not work for the individual disease entities of Leonhard's classification schemes, but only for syndromes.[22] Leonhard's desire to standardise the application of psycho-pharmaceuticals with the help of his doctrine of psychosis was common amongst East Germany psychiatrists.

Developments in East Germany in the 1960s and 1970s

Things began to change in East Germany in the late 1960s. Ehrig Lange, a professor of psychiatry and psychotherapy in Dresden, published an account of an effectiveness study on the uses of haloperidol and trifluperidol in 1968. The Dresden clinic had been commissioned to conduct the study by the pharmaceutical company Janssen, in cooperation with West German clinics.[23]

In another article published in the early 1970s Lange and his colleagues called for a new orientation in East German psycho-pharmaceutical therapy. The Dresden researchers argued that a new form of effectiveness understanding must be employed in order to solve the problems. A new system of evaluating the effectiveness of psycho-pharmaceuticals must be

> connected with the measurability and the specification of psychiatric phenomena as well as the quantification of various forms of [clinical] courses; since a process according to the old traditional method of subjective-descriptive understanding of psychiatric disorders without the possibility of statistically analyzable comparison is, in the future with the testing of psycho-pharmaceuticals as well, no longer viable.[24]

The authors called for a standardized system of documentation through target symptoms that could also be evaluated electronically. They used the AMP system developed by the West German psychiatrists, and advised other clinicians to do the same.[25] A glance at the subsequent discussions on the standardized evaluation of psychiatric drugs makes clear that the debate was concentrated on the electronic processing of data, in effect profiles that could be comprehended statistically.[26]

In the states of the Eastern bloc of the USSR too, statistics and symptom-orientated evaluation were finally coming to the foreground. The famous Czech psycho-pharmacologist Oldrich Vinar summarized the conflict between the school advocating the old psychopathology-oriented approach of efficacy assessment and those favouring a symptom-oriented evaluation in his comments at a nationwide conference on psychotropic therapy held in East Berlin in May 1972:

> Basically our approach is to avoid nosological-diagnostic considerations because we do not label the criteria for the patients' sample as diagnostics. We use temporary provocative names like chlorpromazine affin[ity] or aminitryptilin affin[ity] psychosis. If in doing so we will find groups of diseases with a common pathogenesis in the end, we might come to nosological diagnoses again.[27]

Did this mean the final renunciation of a belief in making psychiatric diagnoses based on a system of nosology (the classification of diseases) derived from patient descriptions? Had East German researchers only adopted the West German AMP system rather than developed their own? Taking a closer look at further developments in East Germany allows us to prove that this was by no means the case. In the 1970s one of Rennert's students, Gerhard-Eberhardt Kühne, continued to work on a syndrome-oriented medical documentation. Since the 1960s Kühne had rejected a strict alignment to nosological systems, demanding instead an assessment geared to statistical parameters.[28]

In 1970 a multi-clinical working group of the Research Department at the Dresden VEB drug factory ("Arzneimittelwerk") was established. Its purpose was to establish systematic clinical cooperation in the field of psycho-pharmacology. Kühne himself was responsi-

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ble for the development of new documentation procedures.[29] One of the objectives of the working group was to develop an individual clinical documentation system, which could be used for investigative research in psycho-pharmacology.[30]

This research priority on psychiatric medical documentation was funded by the East German Department of Health ("Ministerium für Gesundheitswesen") and this eventually led to the development of a unique system.[31] We can, however, only speculate about why the AMP system was no longer applied in East Germany, and why health system officials instead suggested the elaboration of a distinct and separate medical documentation system.

In view of the variety of problems East German psychiatry faced during this era, this research priority rather comes as a surprise, especially since in many respects the two systems were quite similar. One feasible explanation is the increasing imperative in East German psychiatry to be distinguished from the ideologically challenging concept of the capitalist West after 1971.[32] The pressure for such distinction was accompanied by a demand to develop a separate and idiosyncratic East German research agenda.

Kühne and the Structured Psychopathological Assessment System (SPES) in East Germany

The development of a proper medical documentation system can certainly be attributed to this logic. In any case it can be stated that Kühne worked for the entirety of the 1970s on the development of the system. In the late 1970s he finally presented the results of his research on the evaluation of the effectiveness of new psycho-pharmaceuticals. He presented an entirely new recording system, which he called the 'Structured Psychopathological Assessment System' (SPES) which had been developed by the working group.[33]

In 1983 Kühne published the complete manual for the first time. In his foreword he emphasized that the genesis of new measuring instruments in psychiatry had reached a new dimension with the introduction of modern psycho-pharmaceuticals. Concerning the need for a distinct and idiosyncratic system he explained:

> The development of psychometric procedures in psychiatry was and remains to be therapy-oriented. Moreover the inclusion of mathematical and statistical methods as well as electronic data processing increasingly allowed the investigation of the structure of psycho-pathological syndromes and the classification of mental diseases. These studies are required to make a qualified evaluation of the conditions causing and developing psychonerval disorders possible by means of a growing number of results from basic research.[34]

Closely following Freyhan's postulate of double book-keeping, Kühne regarded his syndrome-oriented assessment as the synthesis of two things; a symptom-orientated documentation of findings (like the AMP system) and nosological systems (such as that developed by Leonhard). Using his own assessment system, however, now permitted 'simple book-keeping', and, he noted that 'syndrome-genetic examinations – without prejudging clinical-empirically founded nosological groupings – allowed more comprehensive statements regarding aetio-pathogenetic mechanisms.'[35] Thus it was Kühne's declared goal to release assessment from a purely descriptive narrative, and achieve with his system a new form of research on the causes of mental disorders. In doing so he strove to visualize genetic, constitutional and psychosocial factors based on syndrome assessment.[36]

We must bear in mind here that East German psychiatry principally acted on the assumption of the biological foundation of mental disorders. Such disorders would not emerge until specific environmental conditions prevailed, but they originated ultimately in the subject's genetic predisposition.[37] By the late 1960s a symposium entitled "Socialism, science-technical Revolution and Medicine", organized by the East German Health Department, had already emphasized that the genetic screening of the population was a significant component of prophylaxis.[38] The widespread expansion of genetic counselling agencies since 1970 shows how consistently these efforts were realized.[39] Kühne's system itself arose, among other things, from a research priority on the investigation of neurobiological-based mental disorders.[40]

But what exactly did Kühne's system look like? His medical documentation consisted of two sub-systems, the SPES-A and the SPES-B. SPES-A concerned a non-nosological geared, symptom-oriented collection system, which was basically intended for investigative psycho-pharmacological research.[41] Kühne explained that, in addition, the SPES-A qualified for follow-up studies and epidemiological issues, owing to its relative universality regarding psychopathological facts and circumstances;[42] whereas another part of the medical documentation, the SPES-B, was basically syndrome-oriented, and represented a further development of the SPES-A.

The underlying syndromes were generated from a factor analysis with 400 SPES-A examined psychotics. SPES-B was essentially meant to facilitate the standardised collection of the psychopathological findings of cross-sectional and follow-up studies in psychotic in-

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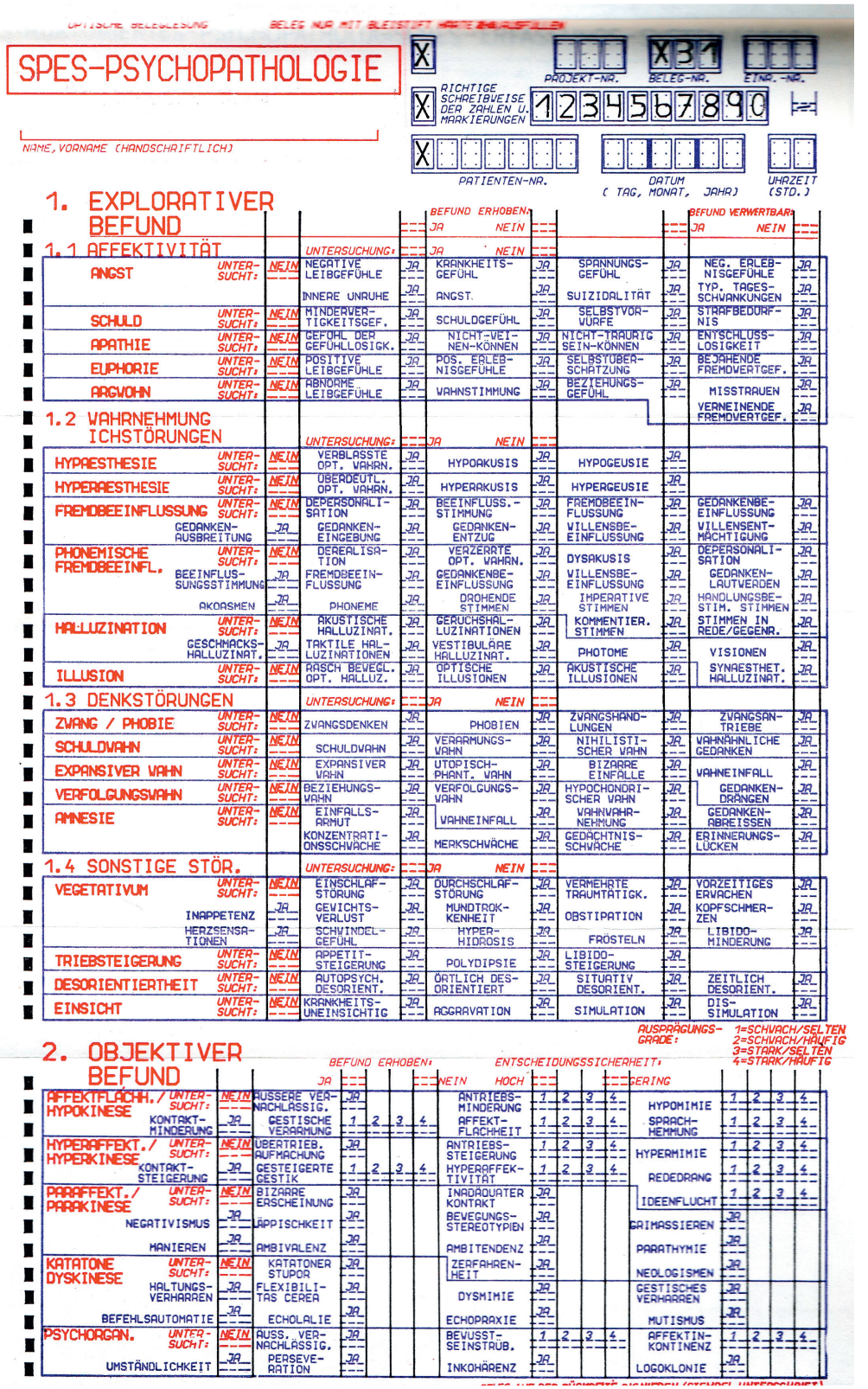

Figure 2. *SPES-System front page (Source: Kühne, Gert-Eberhard and Grünes, Jörn Uwe. Das strukturierte psychopathologische Erfassungs-System (SPES): Ein Beitrag zur standardisierten und dokumentationsgerechten psychopathologischen Befunderhebung. Leipzig: Thieme, 1983. Beiträge zur klinischen Neurologie und Psychiatrie. Bd 51, Appendix)*

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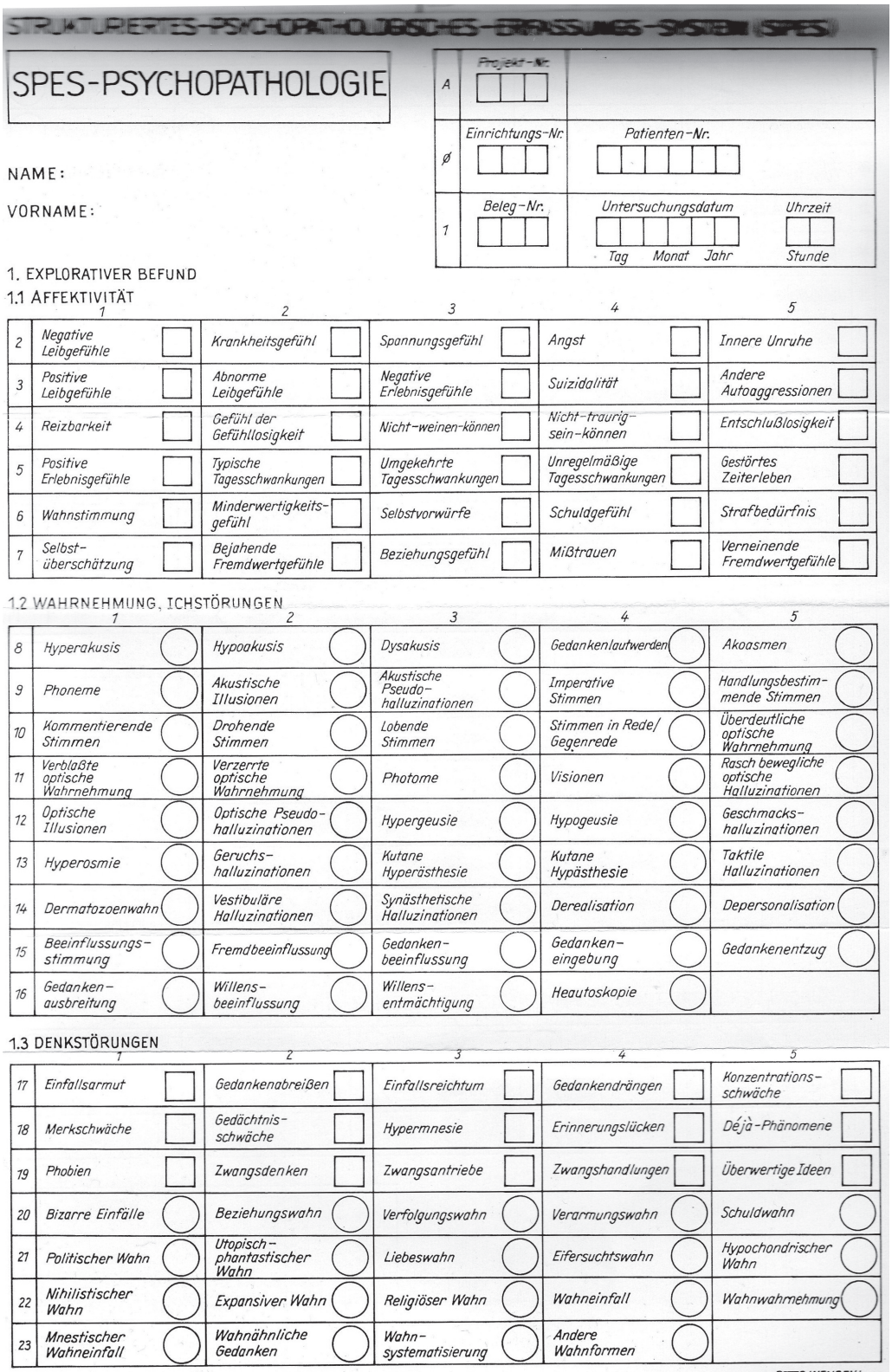

STRUKTURIERTES PSYCHOPATHOLOGISCHES ERFASSUNGS-SYSTEM SPES

SPES-PSYCHOPATHOLOGIE

A	Projekt-Nr.	
ø	Einrichtungs-Nr.	Patienten-Nr.
1	Beleg-Nr.	Untersuchungsdatum (Tag Monat Jahr) / Uhrzeit (Stunde)

NAME:

VORNAME:

1. EXPLORATIVER BEFUND

1.1 AFFEKTIVITÄT

	1	2	3	4	5
2	Negative Leibgefühle	Krankheitsgefühl	Spannungsgefühl	Angst	Innere Unruhe
3	Positive Leibgefühle	Abnorme Leibgefühle	Negative Erlebnisgefühle	Suizidalität	Andere Autoaggressionen
4	Reizbarkeit	Gefühl der Gefühllosigkeit	Nicht-weinen-können	Nicht-traurig-sein-können	Entschlußlosigkeit
5	Positive Erlebnisgefühle	Typische Tagesschwankungen	Umgekehrte Tagesschwankungen	Unregelmäßige Tagesschwankungen	Gestörtes Zeiterleben
6	Wahnstimmung	Minderwertigkeits-gefühl	Selbstvorwürfe	Schuldgefühl	Strafbedürfnis
7	Selbst-überschätzung	Bejahende Fremdwertgefühle	Beziehungsgefühl	Mißtrauen	Verneinende Fremdwertgefühle

1.2 WAHRNEHMUNG, ICHSTÖRUNGEN

	1	2	3	4	5
8	Hyperakusis	Hypoakusis	Dysakusis	Gedankenlautwerden	Akoasmen
9	Phoneme	Akustische Illusionen	Akustische Pseudo-halluzinationen	Imperative Stimmen	Handlungsbestim-mende Stimmen
10	Kommentierende Stimmen	Drohende Stimmen	Lobende Stimmen	Stimmen in Rede/ Gegenrede	Überdeutliche optische Wahrnehmung
11	Verblaßte optische Wahrnehmung	Verzerrte optische Wahrnehmung	Photome	Visionen	Rasch bewegliche optische Halluzinationen
12	Optische Illusionen	Optische Pseudo-halluzinationen	Hypergeusie	Hypogeusie	Geschmacks-halluzinationen
13	Hyperosmie	Geruchs-halluzinationen	Kutane Hyperästhesie	Kutane Hypästhesie	Taktile Halluzinationen
14	Dermatozoenwahn	Vestibuläre Halluzinationen	Synästhetische Halluzinationen	Derealisation	Depersonalisation
15	Beeinflussungs-stimmung	Fremdbeeinflussung	Gedanken-beeinflussung	Gedanken-eingebung	Gedankenentzug
16	Gedanken-ausbreitung	Willens-beeinflussung	Willens-entmächtigung	Heautoskopie	

1.3 DENKSTÖRUNGEN

	1	2	3	4	5
17	Einfallsarmut	Gedankenabreißen	Einfallsreichtum	Gedankendrängen	Konzentrations-schwäche
18	Merkschwäche	Gedächtnis-schwäche	Hypermnesie	Erinnerungslücken	Déjà-Phänomene
19	Phobien	Zwangsdenken	Zwangsantriebe	Zwangshandlungen	Überwertige Ideen
20	Bizarre Einfälle	Beziehungswahn	Verfolgungswahn	Verarmungswahn	Schuldwahn
21	Politischer Wahn	Utopisch-phantastischer Wahn	Liebeswahn	Eifersuchtswahn	Hypochondrischer Wahn
22	Nihilistischer Wahn	Expansiver Wahn	Religiöser Wahn	Wahneinfall	Wahnwahrnehmung
23	Mnestischer Wahneinfall	Wahnähnliche Gedanken	Wahn-systematisierung	Andere Wahnformen	

BITTE WENDEN!

Figure 3. *SPES-System back page (Source: Kühne, Gert-Eberhard and Grünes, Jörn Uwe. Das strukturierte psychopathologische Erfassungs-System (SPES): Ein Beitrag zur standardisierten und dokumentationsgerechten psychopathologischen Befunderhebung. Leipzig: Thieme, 1983. Beiträge zur klinischen Neurologie und Psychiatrie. Bd 51, Appendix)*

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patients.[43] This system was (among other things) also aimed at epidemiological research, by being able to facilitate systematic studies of selected syndromes.

Due to the close interconnection of his two psychopathological forms of medical documentation Kühne tightly attached symptom-oriented psycho-pharmacological research to the development of new syndromes. David Healy has found that over a period of time psycho-pharmaceutical research has dissociated itself from quantitative gradual symptom-oriented collection systems in order to turn to more categorical forms of collection.[44] These would facilitate the tracking down of new outlets for psycho-pharmaceuticals. Hence Kühne's system enabled the transfer out of the symptom-orientated classification into broader syndromes generated out of the individual symptoms, approaching the categorisation postulated by Healy.

From verbose forms of symptom gathering to wordless objectivity

But what were the effects of such new forms of medical documentation, and how did they change the concept of effectiveness? The two kinds of medical documentation examined here describe the attempts of psychiatrists from different schools of thought to standardise the effects of psycho-pharmaceuticals. However the conditions connected to the creation of these new systems of documentation were also incorporated into the newly emerging concept of effectiveness.

These changes necessitated crucial adjustments. The transformation into a scalable and dimensional system was on the one hand supposed to facilitate the measurability of symptoms; yet on the other hand this restatement helped to achieve an opening up of the potential indications for psycho-pharmaceuticals. This now allowed for instance, treating symptoms labelled as abnormal, isolated, hypochondriac, anxious and agitated in combination with each other and psycho-pharmacologically, even if they could not yet be assigned to an existing classification system.

While previously the categorical diagnoses offered little space for the subtle effects of a drug, defragmentation into individual symptoms now offered new possibilities for the organisation of disease categories. Along these lines both the West German AMP system and the East German SPES performed the crucial function that a recording system fulfils within a research system, that is, both systems had to advance the stability and reproducibility of the individual elements.

Yet at the same time they were intended to produce differences in terms of research systems and to facilitate the search for new questions. It was only with this extension to the remit that adjustment of psychiatric diagnoses to the effects of drugs was eventually enabled. Thus Healy's thesis (that in order to develop new psycho-pharmaceuticals, psycho-pharmacology had to discard quantitative, gradual, purely symptom-orientated collection systems and embrace categorical assessments) can be historically specified.[45]

Investigation into the development of the AMP system has shown that it was not until the transformation of a categorical order (as represented by nosological systems) into a symptom-oriented system that this realignment of an effectiveness concept was made possible in West Germany. As indicated earlier with the development of SPES in East Germany, researchers there acted on this symptom-orientation, yet developed the system further in a syndrome-oriented direction. In doing so, they re-approximated clinical-nosological and symptom-oriented research systems, thus also visualising new disease groups.

Thus the West German AMP system and its East German development, the SPES, fulfilled a double task: on the one hand they depicted new efficient profiles, and standardised the effectiveness of psycho-pharmaceuticals; on the other hand they visualised new psycho-pathological categories. In particular, the SPES would facilitate new forms of epidemiological research and a reinvigoration of aethio-pathogenesis. This can be attributed (amongst other things) to the fact that – in the state-controlled East German health system – epidemiology achieved major importance. As early as the mid-1960s the East German Health Department had pointed out that epidemiological research was one of psychiatry's major tasks.[46]

Yet in spite of several research efforts, the desired state of research was not achieved during the following 20 years. In the mid-1980s the Health Department considered that national epidemiological research was still behind international standards and re-issued research programmes. The research focus on biological foundations of endogenous psychoses led by Kühne included a major project on the epidemiology of endogenous psychoses.[47] In the international arena Kühne was also regarded as an expert in psychiatric epidemiology. Hence it can be assumed that Kühne strengthened research, especially by applying his own system.

But what were the effects of applying the two recording systems on patients? How did it change their roles as reliable witnesses, whose statements are essential elements in ensuring the visibility of medication effects? It should be stated that the systems not only standardised psychiatric compilation, but also subjected patients to a normed objectified interrogation.

Thus the translation of the effectiveness assessment in the new systems required that not only the psychiatric diagnosis, but also the patient's behaviour, be tran-

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scribed into a series of symptoms. Transferring the patient's narrative into the new recording systems entailed the translation of the anamnesis and biographical report of psychiatric exploration into a series of quantifiable units. Lorraine Daston described such an abstraction from the language of the patient and its adaption to mechanically evaluable terms as a new form of objectification, which she called 'wordless objectivity'.[48]

According to Daston, dissociation from the clinician's words – and also, I would suggest, from those of the patient – in doing so were characteristic of a new epistemological form, in which phenomena were meant to speak for themselves. While patients' experiences were still discernible, at least in traces, in verbose exploration or published case histories, assessing knowledge by means of the new systems required further abstractions from the patients' language.

Patient experiences had to be further filtered by psychiatrists so as to be able to eventually reduce the statements to symptoms. In the end the patient as 'reliable witness' disappeared in those symptom-oriented forms of collection. Within the scope of this process of abstraction psychiatric patients turn into case studies in quite a peculiar way. By subjecting them to observation and interrogation, measurable in quantifiable units, they are at the same time put through a disciplining standardisation.[49] Effects, which previously seemed to be uncontrollable, were supposed to become manageable with this subdivision of the patient, which is inherent in this standardisation.

Conclusion

In this article I have described the emergence of different schools of thought regarding the diagnosis of psychiatric disease and the assessment of psycho-pharmaceuticals in East and West Germany during the period 1955 to 1985. Whilst in West Germany the assessment of psycho-pharmacological effects became disengaged from casuistic collection around 1960, it took about a decade longer in East Germany. The fact that East Germany started to use objectifiable medical documentation relatively late is quite remarkable, given that the standardisation of medicament-related effects had been a major subject in East Germany as early as the 1950s and 1960s. Hence the late introduction of symptom-oriented medical documentation can probably be attributed to the power of elder and more conservative psychiatry professors, who gained a great deal of influence on the development of the national health system in the aftermath of the exodus of doctors ("Ärzteflucht") from East Germany.

With the political realignment to a socialist psychiatry, individual research systems also gained new momentum. It must remain an open question, however, whether the SPES can be regarded as a very specific form coming from a socialist state, despite its funding from the East German Health Department, or if it is not simply another local tradition of effectiveness standardisation. More appealing for the SPES interpretation is the fact that Gerhard-Eberhard Kühne's research focussed on the fields of psycho-pharmacology and psychiatric epidemiology, and that he planned to connect both areas with each other in his medical documentation.

As I have shown in this article, both research systems generated a new concept of effectiveness by splitting up, shifting and rearranging the old parameters for the classification of psychiatric illness, thus visualising 'new' mental diseases. In doing so, they set off the emergence of a new concept of effectiveness, dissociated from its original meaning. Thus, the newly generated concept of 'wordless objectivity' allowed psychiatry to create a robust concept of effectiveness. But it also had its drawbacks, because it had become largely detached from the effects experienced by the patients.

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SHORT COMMUNICATION

Kohl: an ophthalmic dosage form in Persian medicine, 1555 to 1853

Samaneh Soleymani and Arman Zargaran

Abstract

Early Persian pharmacopeias, known as Qarābādins, contained a large number of pharmaceutical dosage forms which included many ophthalmic preparations. One of the most commonly used ophthalmic formulas was known as Kohl. It was prescribed for eye protection, visual strengthening and for the treatment of eye diseases such as pterygium, trachoma, itchy eyes and leukocoria. It has also been extensively used as a cosmetic from ancient times up to the present day. This article presents an investigation into the different types of kohl formulation, along with their components and uses, which have formed the basis of the most commonly used Qarābādins in Persian medicine.

Abstract in Iranian

نخستین فارماکوپه های فارسی، که به عنوان قرابادین شناخته می شوند شامل تعداد زیادی اشکال دارویی بودند که شامل داروهای چشمی نیز می شد. یکی از دسته فرمولاسیون های بسیار پر مصرف چشمی با نام سرمه (کحل) شناخته می شده است. آن ها برای حفاظت از چشم، تراخم، تقویت بینایی، و درمان بیماری های چشمی مانند ناخنک، خارش چشم، لکوکوریا تجویز می شده است. همچنین به عنوان ماده آرایشی از دوران باستان تا به امروز مورد استفاده بوده است. این پژوهش به انواع سرمه ها و ترکیبات و کاربرد آن ها در کتب مهم قرابادین در طب ایرانی می پردازد.

Introduction

Although it is usually agreed that in Europe the process by which pharmacy formally separated from medicine began in 1231 AD with the Edict of Palermo[1] the separation of pharmacy from medicine in Persian dates back to antiquity.[2] There are several pharmacopeias or pharmaceutical encyclopedias (called *Qarābādin* in Persian medicine) written by pharmacist-physicians. These books describe different types of pharmaceutical dosage forms, along with methods of how to prepare them, and also list various prescriptions and methods of administration. The formulas include a range of ophthalmic dosage forms.[3 4] The most popular ophthalmic formulas are those containing kohl (*Ek-hal*), ophthalmic dusting powders (*Zaroor*), ophthalmic suppositories (*Shiaf*), eye washes (*Ghasool*), eye drops (*Ghotoor*) and eye cooling preparations (*Barood*).[5 6]

Kohl (also known as Surma) is a solid dosage form which is usually black in colour. It has been administrated for the prophylaxis as well as treatment of different eye diseases and also as a cosmetic since antiquity.[7] Indeed, it is still used as a cosmetic today. Because of the importance of kohl as one of the most common ophthalmic formulations used in the prevention and treatment of a wide range of eye diseases by Persian practitioners the study reported here was designed to investigate the different types of kohl dosage form in several of the Qarābādin pharmaceutical textbooks used in Persian medicine.

Qarābādins, traditional pharmaceutical encyclopedias

Qarābādins are traditional Persian pharmacopeias that mainly consisted of a range of multi-ingredient products which included herbal, mineral, and animal medicines. Preparation routes, dosage forms, clinical processes and other associated aspects – as well as different clinical approaches to the use of natural medicaments – are described in Qarābādins.[8] These books were written with a variety of text structures and patterns.[9] One example of such pharmacopeias is the *Qarābādin-e-Shafai,* written by Mozafar Shafai Isfahani in 1555 AD. This is a valuable resource which provides a useful summary of dosage forms and pharmaceutical aspects.[10]

Other examples include the *Qarābādins-e-Ghāderi* written by Hakim Arzani in 1714 AD. This presents information based on anatomy and is arranged from head to toe for different diseases.[11] The *Qarābādin-e-Salehi,* written by Ghaeni Heravi in 1766 AD, was a famous pharmacopeia which includes more than 200 pharmaceutical formulas arranged in alphabetical order.[12] The *Qarābādin-e-Kabir,* written by Aghili Khorasani Shirazi in 1772 AD, is a more comprehensive pharmacopeia in which preparations are classified alphabetically on the basis of a chief component.[13] Finally, the *Qarābādin-e-Azam,* written by Hakim Azam Khān in 1853 AD, is arranged predominantly according to the alphabetical order of the various dosage forms.[14] Figure 1 illustrates the page on a type of kohl (without *Ithmid*) of Aghili Khorasani Shirazi's *Qarābādin-e-Kabir,* written in 1772.

Kohl: description and historical background

Kohl has been defined as a dry eye ultra-fine powder encompassing one or more ingredients – such as lead sulphide, gemstones, minerals and herbs – that were used in the eyes or on the eyelids by means of an eye stick.[15, 16] According to the Qarābādin books the inventor of kohl was Hippocrates.[17] But historical evidence shows that the use of kohl goes back to the Bronze Age,

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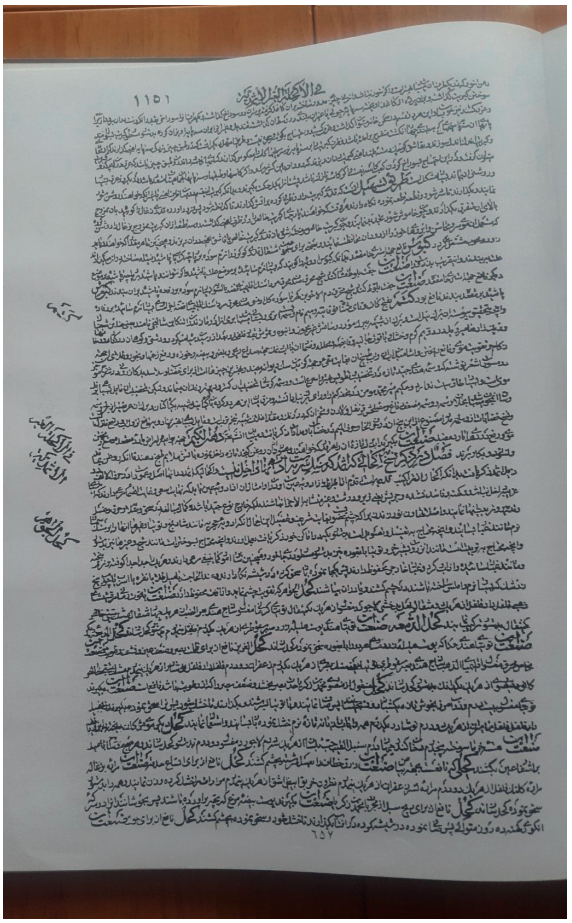

Figure 1. *Page on a type of kohl (without Ithmid) of Aghili Khorasani Shirazi's Qarābādin-e-Kabir, written in 1772.*

around 1100-3500 BC.[18] Historical documents illustrate the application of eyeliner around the eyelids in ancient Egyptians for its protective effect against the glare of the sun.[19] From the grave paintings of the Old Kingdom (The Age of Pyramids, 2900-2240 BC) to the surprising portraits of the Roman Occupation, kohl recipes were transfered from one generation to another over the centuries.[20, 21] Kohl was one of the ophthalmic pharmaceutical preparations applied in Persia at least from 500 BC.[22]

There were two categories of kohl mentioned in Qarābādins; one category contained Ithmid (or Ismad) as its main component, while the other did not. Ithmid was composed only of galena (lead sulphide) that was found in a lead mineral in Isfahan (a province and city in the centre of Iran) where it was called Ithmid-e-Isfahani (or Surma-e- Isfahani).[23]

In addition to Surma stone or Ithmid, other medicinally active ingredients such as gemstones (ruby, garnet, emerald, turquoise, opal), marine coelenterates (coral, pearls), minerals (gold, silver, zinc oxide, copper oxide, plumbum oxidum),[24] and medicinal herbs (*Foeniculum vulgare* Mill. extract, *Crocus sativus* L., *Piper longum* L., *Piper nigrum* L., and *Chelidonium majus* L.) were used in kohl formulations.[25]

Some special ingredients such as musk were blended with the chief components to give it a particular indemnity and to help identify the supplier.[26] Musk deer (*Moschus* spp.) was a form of animal medicine that was an important component of Persian medicine. Its antihistaminic and anti-inflammatory activities are reported in animal models.[27] Some of the kohl formulations described in Qarābādins are presented in Table 1.

Considerations in formulating kohl preparations

Ingredients used in kohl dosage forms needed to be completely milled and passed through the finest sieves. Reduction of particle size was required to prevent probable injuries to the eye and to facilitate the penetration of remedies deep into the eye.[28] They should have been dried in the shade and protected from excessive water and dust. Minerals, stones and sea shells required particular modifications or processing (a process named Tadabir). This might entail a decrease in particle size, in burning (Ehragh) or washing (Taghsil).[29] Burning of the ingredients was a method of reducing their particle size and also of preventing bacterial growth and contamination.[30] In several cases the components were exposed to fire and not burnt completely.[31]

In the washing process the materials should have been completely immersed in a liquid; the sediment created was then separated from the liquid phase above and dried. If necessary this process was repeated a few times.[32] To prolong its shelf life, to maximize its effectiveness, and to prevent the penetration of air the kohl formulation was kept in a glass container and was tightly sealed with wax.[33] Kohl was used in the eyes or eyelids and administered by means of an eye stick.[34] The material used to make the eye stick varied according to the ophthalmic disease being treated. It was commonly made from gold, silver, lead or a very soft barberry root.[35, 36]

Therapeutic and cosmetic value

Kohl was the most frequently prescribed eye product in Persian medicine for the strengthening and maintenance of eye health, and also for improving vision. Also, it was used for the prevention and treatment of various eye disorders including pterygium (*Nakhoneh* or *Nakhonak*), trachoma (*Sabal*) and itchy eyes (*Hekkeh*). It

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Table 1. *Some examples of medicinal kohl in Qarābādins*

Categories	Name of *kohl*	Ingredients	Medical use
With Ithmid-e-Isfahani	*Kohlo-l-dameê*	Ithmid-e-Isfahani (6 *dram**), Helix pomatia (2 *dram*), Sea Foam (1 *dram*), Tutiya (10 *dram*) that processed with fennel extract, Myrobalan bark (2 *dram*)	Eyes with permanent moisture and sometimes lachrymation (*Dameè*)
	Kohlo-l-basalighoon	Burned zinc (6 *dram*), Burned gold and Ithmid-e-Isfahani (of each 1 *dram*)	Lachrymation and blurred vision
	Kohlo-l-ramādi	Ithmid-e-Isfahani, Tutiya, Helix pomatia (of each 10 dram), Greater celandine, pearl (of each 2 *dram*)	Trachoma (*Sabal*), improvement of vision, strengthening of eyes
	Kohlo-l-jawaher	Ithmid-e-Isfahani (7 *dram*), Sulfur (0/5 *dram*), Silver oxide, Gold oxide (of each 12 *dram*), pearl (3 *dram*), Saffron (0/5 *dram*), Indian cassia (2 *dram*)	Improvement of vision, strengthening of eyes
	Kohl-e-tarsa	Ithmid-e-Isfahani (6 *dram*), Black pepper (1 *dram*), Sulfur (5 *dram*), Emblic myrobalan, Tutiya (of each 1 dram), Burned seashell (3 *dram*)	Eye lachrymation (*Dameè),* Itchy eyes *(Hekkeh)*
Without Ithmid-e-Isfahani	*Kohl-e- za'faran*	Saffron, Valerian (of each 2 *dram*), Long pepper (0/5 *dram*), Black pepper (1 *dang***), Ammonium chloride (2 *dang*), Camphor (0/5 *dang*)	Itchy eyes (*Hekkeh*), blurred vision
	Kohl-e-anzaroot	Yellow Brickleaf (3 *dram*), Starch, White candy(of each 1/5 *dram*)	Treatment of eye injuries
	Kohlo-l-bayaz	Sea Foam, Burned silver, Burned copper (of each 4 dram), Valerian, pearl (of each 2 *dram*), Gum Arabic, Gum tragacanth, Sarcocolla, Starch (of each 1 *dram*)	whitening eyes pupil or leukocoria (*Bayaz*), eye injuries and scar treatment
	Kohl-e-mazoo	Tutiya, Iron oxide (of each 2 *dram*), Long pepper, Dragon's blood tree (of each 0/5 dram), Burned zinc, Oak gall (of each 1 *dram*), Cardamom, Musk, Camphor (of each 1 *dang*)	Strengthening of eyes, eyelid pruritus
	Kohl-e-roshanaei	Black pepper, Long pepper, Saffron, Indian cassia, Valerian, Opium poppy (of each 1 *mesghal****)	Blurred vision, eye lachrymation

Weights used in Persian medicine: * One *dram* = 3.2 gram, ** One *dang* = 250 milligram, *** One *mesghal* = 4.6 gram

was also used for the treatment of eyes that were permanently moist, or sometimes for the lachrymation that is seen in a disease like glaucoma (Dameè). Other eye conditions in which it was used included the whitening of the eye's pupil or leukocoria, which is now known to be caused by cataract, conjunctivitis and retinoblastoma (*Bayaz*).[37, 38, 39, 40, 41]

Current investigations support the probable positive effects of many of the ingredients used in the kohl formulations. Zinc oxide (*Tutiya*) was possibly included in kohl because of its strong natural sun blocking property. This would probably strengthen the protective ability of lead sulphide against the sun's glare,[42] and also illustrates kohl's cosmetic application.

Extract of *F. vulgare* (Badiyan) was usually used in the processing of Kohl stone (*Ithmid*). *C. majus* (Mamiran) exhibits an extensive spectrum of biological activities including anti-inflammatory, anti-microbial, anti-tumour and analgesic actions that support some of its eye-regenerative effects.[43] According to Avicenna's *Canon of Medicine*[44] *C. sativus* (Za'faran) was used for eye diseases such as lacrimation, painful eye, cataract, pterygium, purulent eye infection and poor vision.[45] Studies have shown that crocetin in saffron have protective effects against retinal damage and macular degeneration that is one of the causes of blindness.[46] *Piper longum* (Dārfelfel) was extensively in the kohl formulations and is a herb that has shown considerable potential for use in ocular diseases.[47]

Today there are worries about the presence of lead sulphide in the kohl formulation and the possibility of toxicity with it, but several animal and human studies have demonstrated that lead in the kohl formulations is not absorbed through the trans-corneal route, and that kohl is not responsible for any enhanced blood lead concentration. Of course, during pregnancy, its con-

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Table 2. *Names of plants, minerals and animals mentioned in this paper*

Persian name	English name	Scientific name	Family
Badiyan (Razianeh)	Fennel	*Foeniculum vulgare* Mill.	Apiaceae
Ahlilaj (Halileh)	Myrobalan	*Terminalia chebula* Retz.	Combretaceae
Mamiran	Greater celandine	*Chelidonium majus* L.	Papaveraceae
Za'faran	Saffron	*Crocus sativus* L.	Iridaceae
Sonbol-o-l-tib	Spikenard	*Nardostachys jatamansi* (D.Don) DC.	Caprifoliaceae
Dārfelfel	Long pepper	*Piper longum* L.	Piperaceae
Felfel	Black pepper	*Piper nigrum* L.	Piperaceae
Kafoor	Camphor	*Cinnamomum camphora* (L.) J.Presl	Lauraceae
Anzaroot	Yellow brickleaf	*Penaea mucronata* L.	Penaeaceae
Sazaj-e-Hindi	Indian cassia	*Cinnamomum tamala* (Buch. -Ham.) T. Nees & Eberm.	Lauraceae
Samgh-e-Arabi	Gum Arabic	*Acacia senegal* (L.) Willd.	Leguminosae
Katira	Gum tragacanth	*Astragalus tragacantha* L.	Leguminosae
Dam-o-l-akhavein (Khoon Siavashan)	Dragon's blood tree	*Dracaena cinnabari* Balf.f.	Asparagaceae
Afes (Mazoo)	Oak gall	*Quercus infectoria* G.Olivier	Fagaceae
Ghagholeh (Hel)	Cardamom	*Elettaria cardamomum* (L.) Maton	Zingiberaceae
Amlaj (Ameleh)	Emblic myrobalan	*Phyllanthus emblica* L.	Phyllanthaceae
Afiyun	Opium poppy	*Papaver somniferum* L.	Papaveraceae
Ithmid-e-Isfahani	Lead sulphide	-	-
Marghashitha (Hajaro-l-noor)	Iron sulfur	-	-
Shenj (Halazoon)	Helix pomatia	-	-
Zabad-o-l-bahr (Kafe darya)	Sea Foam	-	-
Tutiya	Zinc oxide	-	-
Shadanaj	Iron oxide	-	-
Nooshador	Ammonium chloride	-	-
Mordarsang	Plumbum oxidum	-	-
Marjan	Coral	-	-
Morvarid (Lo'lo)	Pearl	-	-
Yaghoot	Ruby	-	-
La'l	Garnet	-	-
Zomorrod	Emerald	-	-
Firoozeh	Turquoise	-	-
Aghigh	Opal	-	-
Sadaf	Seashell	-	-

sumption should be limited.[48] Table 2 summarizes the information about plants, minerals and animals mentioned in this paper.

Conclusion

Attempts to protect the eye against disorders and to treat its diseases have been documented since antiquity. This article has illustrated the different kohl formulations prescribed by Persian physicians, and also their application in the protection and treatment of eye diseases in other ancient civilizations such as those of Egypt, Rome and Greece. These applications help clarify the importance of this category of formulations. They were effective; the presence of lead as the main component in kohl formulations, along with materials such as zinc oxide, provided an effective sun blocking activity based on natural products.

The effectiveness of kohl largely justifies its use as a cosmetic product from ancient times to the very recent era. Because many kohl dosage forms were repeated in several Qarābādins, across several centuries, their side effects and toxicity were probably gradually diminished and limited by the removal of the most toxic ingredients and reduction in the quantities of others. These observations have been supported by recent studies.[49] Consequently, the historical importance of the use of kohl as one of the most common ophthalmic products in Persian medicine should be considered.

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The emergence of chemists' shops in Wimbledon, South London, 1837-1901: using trade directories and registers to track local pharmacies

Norma Cox and Stuart Anderson

Abstract

This contribution describes the development of chemists' shops in Wimbledon Village in south west London during the Victorian era, between 1837 and 1901. The number of shops doubled after 1860 following a substantial increase in population. The main source of evidence for this study is trade directories, which are a valuable source of information about local businesses. They enable researchers to track the growth and movement of particular trades and services and those involved in them over extended periods of time. The origins and development of trade directories in the London area during this period are also described.

Introduction

Today, there is only one community pharmacy (or chemist's shop as they were usually known) in Wimbledon Village, the name given to the area at the top of Wimbledon Hill along the High Street, Church Street and the immediate streets in the vicinity. It is at the heart of the district in south west London that is known throughout the world for the Wimbledon Tennis Championships, but in the mid-nineteenth century it was within the boundaries of the county of Surrey.

The pharmacy is located at 80 High Street, and it traded as D. E. Davies until 2016. D.E. Davies was the pharmacist-proprietor from 1922 until 1938. Today the pharmacy is known simply as Wimbledon Pharmacy. But in the 1980s there were two community pharmacies in the Village – that of D.E. Davies (then at 76 High Street), and the Watson Pharmacy at 23 High Street. The first author worked in both pharmacies as a locum pharmacist during the 1980s, and she has written previously elsewhere about these shops.[1] Following that study she began to investigate the emergence of community pharmacies in Wimbledon Village (then simply known as Wimbledon) as the village expanded rapidly during the Victorian era.

The Victorian Age is defined as the period spanning the reign of Queen Victoria, from her accession to the throne in 1837 until her death in 1901.[2] It was a time of great industrial change and prosperity, and was also largely a time of peace. Textile and machinery businesses thrived as people poured into the cities for work. The population of England and Wales was 16.8 million in 1851, and this had doubled to 30.5 million by 1901. Wimbledon continued to be administratively located in the county of Surrey until 1965, when it became part of the London borough of Merton.

It was a 'genteel village,' and was home to the gentry.[3] These elite citizens lived in large elegant houses near to the Common,[4] for the area had become very prosperous. There were shops in the high street, but Wimbledon Village was quiet and undeveloped. The station at the bottom of the hill had little effect on Wimbledon, yet as the railways developed their advance brought about massive changes in communication and society. It was not until the arrival of more railways over the 14-year period between 1855 and 1869 that what later became the London suburb of Wimbledon developed.[5] Increasing population created a demand for services and facilities, including chemists' shops.

The Registers of Chemists and Druggists in the Victorian Era

The first chemist shop in London had been opened nearly 500 years earlier, in 1345. The name 'apothecary' was used to describe the pharmacists of the day, but by the seventeenth century London apothecaries were able to examine patients and administer prepared medicines. The Apothecaries could not charge for the examinations, only for the medicines.[6] By the end of the seventeenth century the physicians and apothecaries were locked in conflict. The Apothecaries consolidated their position by becoming 'general practitioners in physic, surgery, pharmacy and midwifery'. Chemists and druggists emerged as the new class of compounders of medicine.[7]

The Victorian Age saw rapid developments in the evolution of pharmacy as a profession. The Pharmaceutical Society of Great Britain was founded in 1841 by a group of prominent chemists and druggists in order to protect their trade from unqualified practitioners.[8] In the early nineteenth century anyone could practise as a chemist and druggist, and unqualified persons were threatening the jobs of the qualified. The new Society therefore set education standards, with the requirement of entry by examination. They published annual lists of recognised chemists and druggists (members, associates and apprentices) in the *Pharmaceutical Journal* from 1841.[9]

With passage of the Pharmacy Act in 1852 a Register of Pharmaceutical Chemists was kept for the first time. The Register was kept by the Pharmaceutical Society, and it included only the names and addresses of the proprietors of chemists' businesses. It was not until the later Pharmacy and Poisons Act was passed in 1868 that examination and registration became mandatory, although membership of the Pharmaceutical Society of

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Great Britain remained voluntary until 1933.[10] A separate *Register of Chemists and Druggists* was kept of those who had completed the Minor Examination. Separate Registers continued until 1954.

The Registers of Pharmaceutical Chemists and of Chemists and Druggists are valuable sources for pharmaceutical historians, especially for tracing the movement of individuals over their lifetimes. However, they are less helpful in tracking the growth of chemists businesses in particular communities. A Register of Premises is available, but this only dates from 1937, having been made a requirement by the 1933 Pharmacy and Poisons Act. Before then trade directories provided a valuable source of information about the shifting patterns of chemists' businesses.

The origin of trade directories

Collins Dictionary defines a directory as 'a book which gives lists of facts, for example people's names, addresses, and telephone numbers, or the names and addresses of business companies, usually arranged in alphabetical order'.[11] A trade directory has been defined as 'a book containing alphabetical lists and information about companies and organizations involved in trade in a particular area'.[12]

Trade directories have a long history, the first recognized London trade directory having been published in 1677.[13] Since then many different types of directory have been published. They vary greatly in format and scope; some are very specialist, such as lists of medical practitioners, or householders in Clapham. Others were all-embracing general directories, such as *Kelly's Post Office London Directory.* Between these extremes were a wide variety of directory sub-types.[14]

Also classified as directories were a wide range of other publications that provided information to local residents and businesses. These included almanacs and calendars, but not registers, as these were organized on a nationwide rather than local basis.

Directories had two purposes as a reference source: to help people find those with trades, and for travelling salesmen to identify promising sales leads. Trade Directories were an important means of advertising in earlier centuries. Many of these old directories have now been transcribed or scanned and can be used to track ancestors as their businesses moved or developed.

The directories were compiled by surveyors knocking on doors to gather information. In the early directories, people were eligible to be included if they had a trade (for example, dress maker, chimney sweep, butcher or shop keeper). Gentry and clergy were also included in the early directories. Farmers were not included in most of the Pigot's directories, but were in others.

Directories were usually a combination of gazetteers and trade directory. They contain an immense amount of information about towns and villages, their facilities in the year of the directory, their history, and lists of all the people in each area who have trades. Not only businesses and shops were listed; so too were ordinary people working as gardeners, blacksmiths, seamstresses, dress makers, chimney sweeps and so on. It is often possible to reconstruct their lives, with details of things happening around them in the place where they lived.

Later directories were often presented in three sections. First was a 'county listing' of places, with descriptions, facilities and history; second was a 'court directory', which listed private residents, but not all of them; third was a 'classified trade directory', listing all those people with trades in each place. The court directory section became the place where ordinary private residents were listed; the section was later renamed 'private residents'.

Kelly's Post Office London Directory

The best known of the trade directories were those published under the name Kelly. Kelly's Directory (or more correctly, the *Kelly's Post Office and Harrod & Co. Directory*) listed all businesses and tradespeople in a particular city or town, as well as a general directory of postal addresses of local gentry, landowners, charities, and other facilities. It was first published in 1799.[15]

The Post Office London Directory was first published under the title *The New Annual Directory for the Year 1800.* It was renamed the *Post Office Annual Directory* in 1801; the Proprietors – Messrs Ferguson and Sparke – were Inspectors of the Inland Letter Carriers, the postmen who delivered letters from outside London, and they claimed the patronage of the Postmaster General, Earl Gower. The change of title gave it the aura of a semi-official publication, which the owners capitalized at every opportunity.

It became the *Post Office London Directory* from 1816, and soon saw off its principal rival, *Kent's Original London Directory.* The principal objective and intent of the publication was, they claimed 'to afford accurate and useful information to the public with respect to the names, occupations and places of residence of the merchants, tradesmen and others carrying on business or residing in the metropolis'.[16]

In 1835 or 1836 Frederic Festus Kelly became chief inspector of letter-carriers for the inland or general post office and took over publication of the *Post Office London Directory.* Its copyright was held in private hands, despite its semi-official association with the post office. Kelly had to purchase it from the widow of his prede-

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cessor, which he did in 1837 (the year of Queen Victoria's accession to the throne). He introduced a number of minor changes, including people's Christian names and titles for the first time.

From 1840 Kelly's *Post Office London Directory* incorporated a classified trade directory. Kelly founded Kelly & Co. and he and various family members gradually expanded the company over the next several decades, producing directories for an increasing number of UK counties and buying out or putting out of business various competing publishers of directories.[17] The first directories of counties outside London were published by Kelly in 1845 and during the next sixteen years the series was extended throughout England.

Other publications followed, including the *Handbook to the Titled, Landed and Official Classes* (1875) and *Merchants, Manufacturers and Shippers* (1877). In 1897, Kelly & Co Ltd became Kelly's Directories Ltd, and the full title of the Directory became *The Post Office London Directory for 1899, comprising, amongst other information, official, street, commercial, trades, law, court, parliamentary, postal, city and clerical, conveyance and banking directories'*.

The name Kelly's Directories Ltd remained for another 106 years before finally being renamed Kellysearch in 2003 to reflect its focus away from hard copy directories and towards an Internet-based product search engine.

Competitors in the trade directory business

Trade Directories were a lucrative business and soon others entered the market. A first edition of William Robson's *New London Directory* appeared in 1819. This ran to 24 editions, the last produced by Bowtell & Co. in 1843. James Pigot published his first directory in 1811 in his native Manchester. He produced his first *London Directory* in 1822. Robson and Pigot were in direct competition throughout the 1820s and 1830s. Pigot finally withdrew from the London directory market in 1841, following change at the *Post Office London Directory*.

Later Pigot & Co. published the *Royal National and Commercial Directory* before being acquired by Isaac Slater Ltd. In 1892 Kelly's Directories Ltd acquired the majority of shares in Isaac Slater Ltd, and the firm of William White of Sheffield was absorbed in 1898.

Kelly's innovations tempted yet others to enter the market, with the directories getting bigger and bigger. In 1844 R. Thompson introduced a comprehensive directory that included commercial and classified trade sections. In 1861 J.S.C. Morris published *The Business Directory of the Manufacturing and Commercial Cities of England.* Volume 3, published in 1862, covered London. At the same time Ashbee & Co. published a *Merchants and Manufacturers Pocket Directory.*

Directories for the Wimbledon area

With the rapid growth of London during the Victorian period a single trade directory covering London and its suburbs was no longer viable. Directories published in multiple volumes were the answer. The market for local suburban directories became highly competitive from the mid-1880s. London directories were the first to have house by house, street by street listings of householders (even those without recognised trades). This feature was gradually introduced in most other counties, but only for the main towns. Some counties, such as Essex, never had street directories.

In 1881 Edwin Trim & Sons of Wimbledon took the initiative and published *Trim's Wimbledon & Merton Directory and Trade Advertiser* for July-December 1881. This was followed in 1885/86 by Kelly's, who published their *Post Office London and Suburban Local Directory.* Section 10 covered nine suburbs in south west London: Wandsworth, Wimbledon, Tooting, Roehampton, Putney, Barnes, Mortlake, Kew and Richmond. Their directory for Wimbledon, Merton, Mitcham, Sutton and District was published continuously between 1891 and 1940.

Wimbledon Chemists and Druggists listed in Trade Directories

Trade directories are a very useful source of information on Wimbledon occupations during the Victorian Age. In the directories of the early to middle nineteenth century there were no chemists and druggists listed for Wimbledon in the years 1838,[18] 1839[19] and 1840.[20] There were two surgeons listed in the trade directories for Wimbledon, so a wider search of Surrey was made to clarify if chemists and druggists, surgeons, and apothecaries were grouped together.

This was found not to be the case, for in Pigot's directory for 1839, Richmond, Surrey had four 'chymists and druggists' and Wandsworth, Surrey had three.[21] The two Wimbledon surgeons were John Sanford and Thomas Ellis Tapley. In the 1845 Post Office Directory, Mr Thomas Tapley is listed as a chemist and druggist.[22] He is listed again as a chemist and druggist in an 1846 directory,[23] in an 1851 directory[24] and in an 1855 directory, where his name is stated as Thomas Ellis Tapley.[25] It was not possible to trace Mr Thomas Tapley for the years 1856-1859 as the directories for Wimbledon were not available. His name was not listed in the trade directory of 1860.[26] The 1860 directory showed that there were two chemists and druggists in Wimbledon; one was Mr Charles Bland, High Street,

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and the other was Mr George W. Snowdon, High Street.

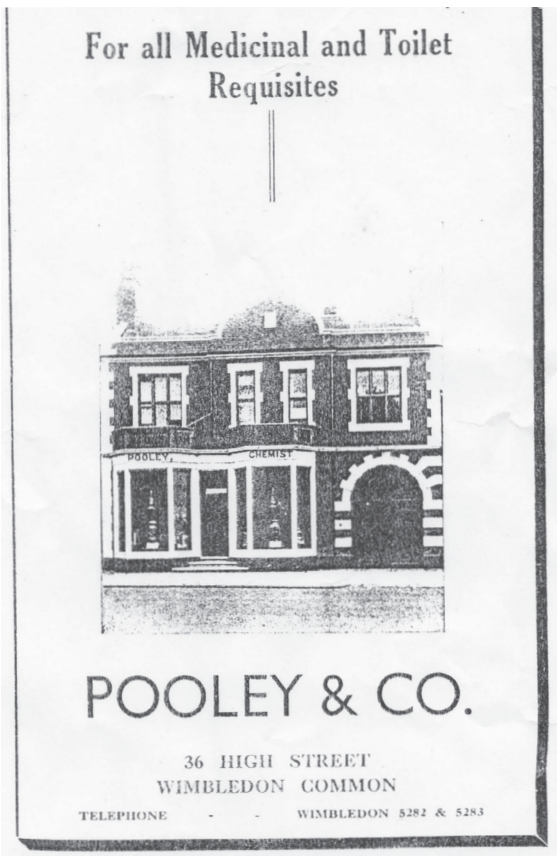

Figure 1. *Pooley & Co. 36 High Street, Wimbledon (Source: Kelly's Directory of Wimbledon 1940)*

Wimbledon Chemists and Druggists listed in Telephone Directories

In the 1862 Post Office directory of Surrey Mr Bland had gone. Listed were George W. Snowdon, chemist, High Street Wimbledon and Joseph Phillips Mellin, chemist, High Street Wimbledon.[27] These two chemists were listed in the directories for 1863[28] and 1865.[29] In the 1866 directory[30] only the name of George W. Snowdon is listed. In the directory of 1868[31] only the name of Joseph P. Mellin is listed. In the directory for 1870[32] Joseph Phillips Mellin, chemist High Street, Wimbledon is listed, and a new chemist, Mr Thomas Elton Kirkman, High Street Wimbledon appears for the first time. Mr George W. Snowdon had disappeared from the directory.

These two chemists – Mellin and Kirkham – are listed in subsequent directories for the years 1872-1887.[33, 34, 35, 36, 37, 38, 39, 40, 41] A change is seen in the directory for 1888.[42] Mr Mellin's name is not in the directory; it had been replaced by Mr J.D.S. Pooley, and the address given was 36 High Street, Wimbledon. T.E. Kirkman is still listed as 30 High Street Wimbledon. In the directories for the years 1890-1896[43, 44, 45, 46, 47] the names of Mr T.E. Kirkman, chemist at 30 High Street and Mr J.D.S. Pooley, chemist at 36 High Street Wimbledon are listed.

In the 1898 directory Mr T.E. Kirkman is chemist at 76 High Street, Wimbledon. The shop at 30 High Street, Wimbledon was now a drapers. Mr J.D.S. Pooley was still at 36 High Street, Wimbledon.[48] The same listings are seen in the 1899 directory[49] and in the annual registers up to 1901.[50] Table 1 shows a summary of these Chemists and Druggists details.

Although Mr Thomas Ellis Tapley was the first person listed as a chemist and druggist in Wimbledon in 1845, it is interesting that he had practised as a surgeon in Wimbledon for at least nineteen years,[51] before becoming a Chemist and Druggist. Although some job descriptions in the early nineteenth century were ambiguous, for John Sanford of Wimbledon was an apothecary in 1817, a surgeon in 1841 and a retired medical practitioner in 1851.[52]

This examination of the directories indicate that, once established in a particular pharmacy, individuals tended to remain there for some years, although this may have involved a relocation of the premises. The periods of service of the named pharmacists are summarised in Table 1.

Wimbledon Chemists and Druggists listed in Registers of Pharmaceutical Chemists

Mr Tapley's name appeared as a chemist and druggist in 1845, four years after the foundation of the Pharmaceutical Society of Great Britain. His name did not appear in the published lists of the Pharmaceutical Society,[53] but this was not unexpected, as the mandatory conditions of the Pharmacy Act did not come into force

Table 1. *Summary of chemists and druggists in business in Wimbledon 1845-1901*

Years in business	First pharmacist	Years in business	Second Pharmacist
1845 - 1855	Thomas Ellis Tapley	-	-
1860 - 1862	Charles Bland	1860 - 1870	George Snowdon
1862 - 1888	Joseph Mellin	-	-
1888 - 1901	J.D.S. Pooley	1870 - 1901	T.E. Kirkman

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until 1868.[54] Mr Tapley has also been called Mr Topley,[55] and his address in the 1841 census was 31 High Street North, Wimbledon.[56] His surname was in fact Tapley; he was born in Exeter, Devon in 1798, as shown in the 1851 census.[57]

Mr George Wrangham Snowdon was the first Wimbledon pharmacist whose name was published in the lists of the Pharmaceutical Society.[58] He registered in 1863. Mr Joseph P. Mellin is listed in the 1869 register of Chemists and Druggists and Pharmaceutical Chemists.[59] He registered on 31 December 1868 and was in business before August 1868. Both of these High Street businesses were listed in the directories for 1860, but it was not possible to determine which was the older, as the trade directories for 1856-1859 were missing.

Mr J.D.S. Pooley took over Mr Mellin's pharmacy at 36 High Street in 1888. Locals remembered Mr Pooley's shop, for it had two large glass carboys in the shop windows, one red the other blue, which were still there in the 1920's.[60] Number 36 High Street is in a parade of shops where many of the buildings were Georgian.[61] Figure 2 shows the building today.

Figure 2. *36 High Street, Wimbledon today (Source: Photograph by Norma Cox 2017)*

Mr Kirkman registered with the Pharmaceutical Society of Great Britain on 31 December 1868, having been in business before August 1868.[62] Mr Kirkman took over Mr Snowdon's shop in 1870. Mr Kirkman's business moved premises in 1899 to 76 High Street, which was part of a new building, comprising a court dresser at 74, a bank at 75 and a nurseryman also at number 76. Figure 3 shows the building today, with number 76 on the right.

Figure 3. *74-76 High Street, Wimbledon today (Source: Photograph by Norma Cox 2017)*

Conclusion

This small investigation into the number of chemists and druggists in Wimbledon High Street during the Victorian era has shown that the number doubled after 1860, following a substantial increase in population. This rise in population was due to the development of Wimbledon Village. Foundation of the Pharmaceutical Society of Great Britain in 1841 and the subsequent professionalization of pharmacy[63] led to increased job security and professional status for chemists and druggists, and this is reflected in the long service given by the Wimbledon Village chemists and druggists. The Pharmacy Act of 1868 set the standards for community pharmacy we still see today. Numbers 36 and 76 High Street Wimbledon still remain, but not as community pharmacies. Their architecture is a reminder of the history of Wimbledon Village.

Trade Directories constitute an important source for tracking the rise and fall of pharmacy businesses in local communities in Great Britain, for identifying the names and addresses of their owners as well as the length of time they were in business. They are of particular value during the nineteenth century when other sources of this information are much more limited. Registers of Pharmaceutical Chemists and Chemist and Druggists can supplement but not replace them, and the Register of Premises is only of help after its first publication in 1937.

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Major accessions to repositories in 2016 relating to Pharmacy and Chemistry

The National Archives, Kew, London

The National Archives (TNA) in London publishes an annual list of *Accessions to Repositories* which collates information provided by over 200 record repositories throughout the British Isles. It lists manuscript accessions received during the previous 12 months. This information is then edited and used to produce 38 thematic digests, one of which is entitled "Pharmacy and Chemistry". The thematic digests are made available in full on the TNA website, and are also distributed for publication in learned journals and newsletters. See http://www.nationalarchives.gov.uk/accessions/2016/16digests/default.htm.

In 2013 The National Archives replaced its old catalogue with a new online platform called *DISCOVERY*, which allows users to search for records held on it. This also incorporates information from other sources describing records held in archives elsewhere, as part of TNA's *Finding Archives* project. This project oversaw the integration of content from the National Register of Archives (NRA), the Directory of Archives (ARCHON), Access to Archives (A2A) and the Manorial Documents Register (MDR) into *DISCOVERY*.

The *DISCOVERY* platform now provides a single point of online access to catalogue and organisational data from across the archive sector, including Accessions to Repositories. The platform provides descriptive and access information about millions of records held in over 2,500 archives in the United Kingdom and overseas. It has now integrated approximately 10 million catalogue descriptions from Access to Archives, along with over 250,000 National Register of Archives and Manorial Documents Register entries.

In addition to the "Pharmacy and Chemistry" theme some records of possible interest to pharmaceutical historians may be listed under other headings, especially under the "Health and Medicine" theme. Accessions during 2016 listed under both themes which may be of interest to pharmaceutical historians are listed below.

Major accessions to repositories in 2016 relating to "Pharmacy and Chemistry" are as follows:

LOCAL:

Archifau Ynys Mon / Anglesey Archives:

William Prytherch Parry, ophthalmic optician and pharmacist, Llanfairpwll: papers c1960 (WDAAX).

Coventry Archives & Research Centre:

AL Smith, chemist, Coventry: prescription ledgers c1900-1950 (PA3095).

Wyley's Ltd, pharmacists and chemists, Coventry: formula book, receipts c1757-1950 (PA3108).

Hull History Centre (Hull City Archives):

Pharmaceutical Society of Great Britain, Hull: photograph album, visitor's book, printed material, list of officers, records rel to early warning system c1869-1998 (C DSCA).

Oxfordshire History Centre:

Pharmaceutical Society of Great Britain, Oxford and district branch: minutes and corresp 1938-1964 (Acc 6495).

SPECIAL:

Royal Society:

Sir John Warcup Cornforth (1917-2013), chemist: personal papers incl photographs c1950-2000 (COR/3).

UNIVERSITY:

London University: King's College Archives:

John Louis William Thudichum (1829-1901), physician and chemist: papers incl research notes, letters and spectrographic images 1867-1886 (Acc 3381).

Major accessions to repositories in 2016 relating to "Health and Medicine" which may be of interest to pharmaceutical historians include the following:

LOCAL:

Warwickshire County Record Office

Samuel Hollingsworth Agar (1857-1941), physician: prescription book 1911-1942 (CR4825).

SPECIAL:

Wellcome Library

DrugScope, charity: records rel to drugs and drug policy c1930-2000 (SA/DRS).

Recipe and prescription book, mostly in Latin c1740-1760 (MS.9215).

Manuscript collection of medical recipes in several hands, with printed recipes pasted on the inside covers c1800 (MS.9221).

UNIVERSITY:

Warwick University: Modern Records Centre

Release, charity for drug users: papers and publications 1969-1979 (1132).

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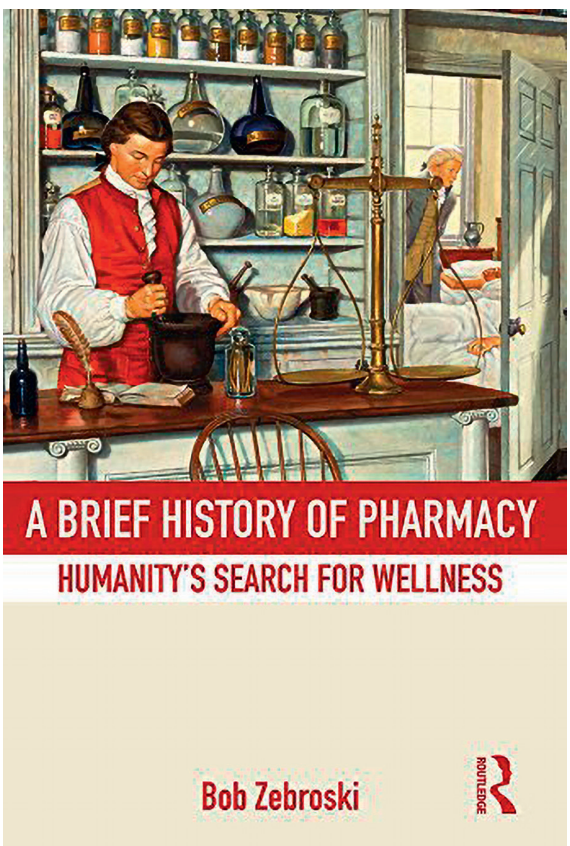
BOOK REVIEW

A Brief History of Pharmacy: Humanity's Search for Wellness

By Bob Zebroski

New York: Routledge, 2016. Pp. 250. Hardback, price £110.00. ISBN 978-0-415-53783-4. Softback, price £30.99. ISBN 978-0-415-53784-1. Ebook, price £26.39. ISBN 978-0-315-68583-0.



Reviewed by Stuart Anderson

Capturing the entire history of pharmacy in a single volume is a momentous challenge, and not surprisingly it is not undertaken very often. In the English language, the last revision of the definitive American account, *Kremers and Urdang's History of Pharmacy* (first published in 1940) appeared over 40 years ago, in 1976. Such projects require many difficult choices; about the relative attention to be focussed on the history of pharmacy in a particular country versus developments around the world; about the division of available space between different time periods – from antiquity to the present day; and about what level of prior knowledge, if any, by the reader can be assumed. The appearance of this latest book – a single author volume by Bob Zebroski – is therefore to be warmly welcomed.

Zebroski, who is professor of history and chairperson of the Liberal Arts Department at the St. Louis College of Pharmacy, is very clear about his target audience; as the cover states 'this accessible survey of pharmaceutical history is essential reading for all students of pharmacy.' With this in mind the layout of the book is designed to grab and maintain the reader's attention. Each chapter starts with an overview question which the chapter then proceeds to answer. The main text is interspersed with boxes and pop-up items to retain the reader's interest, and each chapter is supported with illustrations, charts and diagrams. A summary, key words and a list of learning outcomes indicating what the reader should be able to do having read the chapter are provided at the end of each chapter. All this bodes well for an absorbing and informative, if brief, account of the history of pharmacy.

The book itself has a brief introduction to 'the essentials of pharmacy' which is followed by 16 chapters of varying lengths but usually of between 10 and 20 pages. The first eight cover the history of pharmacy up to the early nineteenth century. Starting with pre-historic pharmacy in chapter 1 they progress through pharmacy in the river civilisations of Mesopotamia, Egypt, ancient India and China. Chapter 4 deals with pharmacy in ancient Greece and Rome, before successive chapters deal with medieval pharmacy in the west and then the Arab and Islamic worlds. Chapter 7 tells the story of pharmacy during the European Renaissance and the early Modern era, with chapter 8 moving on to eighteenth and early nineteenth century pharmacy, tracing the evolution of the apothecary to the chemist and then the pharmacist.

The second half of the book is concerned almost exclusively with the history of pharmacy in the United States, which is then explored in rather greater detail. Chapter 9 covers colonial and early American pharmacy, while chapter 10 focuses on the era of alternative and patent medicine. Successive chapters deal with the development of pharmacy practice, the history of pharmacy education, and the origin and growth of the pharmaceutical industry. The final three chapters deal respectively with the emergence of the chain drugstore, the impact of federal legislation and the history of hospital pharmacy and the rise of clinical pharmacy. Disappointingly there is then no attempt at drawing together key themes across time and place in a concluding chapter.

Each chapter is extensively referenced, with typically around 40 references, although individual chap-

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ters list between 13 and 52 references. However, overall the source material is extremely limited; a very high proportion of the references come from a very small number of very old secondary sources. Charles Lawall's 1927 book, *Four Thousand Years of Pharmacy*, is extensively referenced throughout the book, as are some of the early British histories of pharmacy including Wootton's 1910 two volume *Chronicles of Pharmacy,* Thompson's 1929 *The Mystery and Art of the Apothecary* and Grier's 1937 *History of Pharmacy.*

This reliance on early British contributions to the history of pharmacy is a little surprising. In Britain three important books appeared during the 1960s, starting with Matthew's scholarly *History of Pharmacy in Britain* in 1962. It was followed by George Trease's chronological account of *Pharmacy in History* in 1964, and Poynter's edited volume on *The Evolution of Pharmacy in Britain* followed in 1965. Whilst a number of important histories have appeared since, they have usually been concerned with specific aspects of the history of pharmacy such as its institutions, education or artefacts. The most recent attempt in Britain to provide an overview of pharmacy history has been *Making Medicines: A Brief History of Pharmacy and Pharmaceuticals,* published in 2005 by The Pharmaceutical Press.

Perhaps rather less surprising is the selective use of Sonnedecker's 1979 revision of *Kremers and Urdang's History of Pharmacy.* Extensive use is also made of George Bender's 1966 *Great Moments in Pharmacy,* and of Cowen and Helfand's 1990 *Pharmacy: An Illustrated History.* Other extensively used but rather more recent secondary sources include Roy Porter's 1997 *The Greatest Benefit to Mankind: A Medical History of Humanity* and Barbara Griggs' 1997 *Green Pharmacy: The History and Evolution of Western Herbal Medicine.*

All of these might more appropriately and helpfully have been provided as a suggested reading list. However, once removed from the reference lists some of the latter would be very thin indeed. Even many of those remaining were published some time ago, such as Riddle's 1985 book *Diascorides on Pharmacy and Medicine* and some of the early works of Scarborough and Griffenhagen. Only in the later chapters on the recent history of American pharmacy do any references dated after 2000 make an appearance.

There are difficulties with placing too great a reliance on old secondary sources. Firstly, there are sometimes substantial differences in the different accounts given of the early history of pharmacy. Some of them are themselves inadequately referenced, or depend for their source material on different earlier texts. Unfortunately quite a number of errors have crept into this book. British readers will be surprised to learn that the compressed pill or 'tablet' was discovered in the 1860s by a Philadelphia wholesale druggist called John Dunton (a patent for a die and punch had been taken out by Brockeden in 1843); and that the Society of Apothecaries of London was founded in 1606 (it was 1617).

Inevitably in an intentionally brief history of pharmacy some important information has to be omitted. But a book aimed at a new generation of pharmacy students needs to cover a few essentials. Not all pharmacy students can be assumed to have a sound understanding of historical methods and their relevance to pharmacy. With pharmacy history – as in history more generally – students need to be constantly asking whose history is being presented, to know how to deal with incomplete evidence, and to place historical accounts in their social, cultural, economic and political contexts. They need a good understanding of historical sources, both primary and secondary, from the written word to oral history and artefacts; and they also need to be able to critically interpret historical information readily available on the internet.

A final observation relates to the title of the book. Although the title makes no mention of pharmacy in the United States Zebroski does include a sub-title, 'humanity's search for wellness'. But those searching for wellness as a theme linking the chapters will look in vain. Rather than wellness the book records mankind's constant battle with sickness. It provides a brief account of mankind's search for relief from their ailments, for ways of preventing sudden death, and for delaying its premature arrival; and it gives a brief account of how some individuals came to occupy the occupational space of those offering remedies for such concerns.

But a more important objective for pharmaceutical historians in teaching pharmacy students today is surely to demonstrate that the history of pharmacy is a substantial, dynamic and important field of study in its own right, a field that continues to generate a stream of high quality original research, and which requires us to constantly question, revise and correct our understanding of pharmacy's history. This book feels like a missed opportunity to provide the sort of resource needed by the pharmacy students of both today and tomorrow.

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